

## **Abstract**

A system, methods, and algorithms for content-based image retrieval and recognition system, useful in all types of images and image formats. An image(s) or an image segment(s), which is specified by the user in two clicks (the first in the upper-left corner and the second in the bottom-right corner), specifies the content-based sample. The sample image(s) is used to teach the system what to look for via the ABM (Attrasoft Boltzmann Machine) algorithm and APN (Attrasoft PolyNet) algorithm; the system then searches through one or many directories, which is specified by the user, and presents the search ~~research~~ results. The search result consists of pairs of matched images and its Weight (score), which specifies the similarity between the sample and matching images. These weights are also being used to classify images in the cases of the classification problem. The users are able to view the retrieved images in the result via a single click. When the algorithm is implemented as a software component, the system integration will follow the specification of the “Attrasoft Image Verification and Identification Application Programming Interface (IVI-API)”.